Laser Scar Revision: Fractional Technology and Combination Treatment

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Laser Scar Revision
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Disclosure

• Cutera
• Cynosure/Palomar
• Lumenis
• Sciton
• Solta/Valeant
• Syneron/Candela
Laser Scar Revision: Treatment Options

**Vascular- Specific Lasers**
- 595nm Pulsed Dye Laser (PDL)
- 532 nm Potassium-Titanyl-Phosphate (KTP)
- 1064 nm Neodymium:YAG (Nd:YAG)

**Fractional Resurfacing Lasers**
- Non-ablative fractional (NAFR)
- Ablative fractional (AFR)
Laser Scar Revision: Vascular-Specific Lasers

- Pulsed dye laser
- Most studied laser for scars
- 595 nm PDL: low fluence, short pulse duration
  - 4.5-6.0 J/cm², 0.5-2ms, 10mm spot
  - Purpura is irrelevant
- 4-6 week intervals, number of treatments: variable
- ILK or 5FU (or mix) immediately s/p PDL if needed
Laser Scar Revision: Vascular-Specific Lasers

- Other vascular-specific lasers are helpful also.

  - 20 patients, 6 split-scar rx, q4 weeks
  - 595nm vs 1064nm: results equivalent

  - 20 patients, 3 split-scar rx @ 6 wk intervals
  - 595nm vs 532nm, results equivalent
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Fractional Resurfacing Lasers

- Non-ablative fractional resurfacing (NAFR)
  - 1550 and 1540nm most well-studied
    - 12 pts, split-scar 595nm PDL vs 1550nm

  - NAFR on mature burn scars
  - 20pts, 3 monthly rx, +untreated control
  - Stat significant improvement, f/u 6 mos
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Non-Ablative Fractional Resurfacing Lasers

- Series of treatments for the best response
  - Discuss expectations/goals prior to treatment
  - Treatment depth tailored to scar thickness

- Well-tolerated, topical anesthesia only

- Easily combined with vascular-specific lasers at same visit
  - Prudent to start at lower settings; however can usually advance to standard settings without side effects
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Ablative Fractional Resurfacing Lasers

- Carbon Dioxide (CO2) or Erbium:YAG
- Excellent for facial surgical scars, traumatic/burn scars
- Multiple studies demonstrate efficacy
- Current AFR devices have better depth of penetration than NAFR, up to 4.0mm
- Conservative approach, customize treatment depending on type and depth of scar
- Opportunity for drug delivery through channels
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How does AFL compare for surgical scars?

- PDL vs Fractional CO2
  - 14 pts, split-scar 2 weeks s/p Mohs
  - No stat significance between PDL vs AFL
  - Trend PDL for color, AFL for thickness/ptiability

- NAFL vs AFR
  - 20 ♀, split-thyroidectomy scar s/p 2-3mos
  - 2 rx, 3 month f/u, no stat significant difference
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How Does AFL compare with fully ablative resurfacing?

  - 20 pts, split-scar, excisions 8wks-1 yr old
  - Fractional Er:YAG vs. fully ablative Er:YAG
  - 3 rx at monthly intervals, follow up 8 weeks after last rx
  - Superior outcome with fractional Er:YAG w/blinded eval
  - Patients overwhelmingly preferred the fractional Er:YAG
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Burn Scars with AFR: Less is More


  • Extensive experience with use of AFR on wounded warriors

  • Significant improvements in contractures with increased range of motion

  • High energy, low density treatments (<5%) q1-2 months
Laser Scar Revision Consensus Report

- Anderson RR, Donelan MB, Hivnor C, Greeson E, Ross EV, Shumaker PR, Uebelhoer NS, Waibel JS.


- Emphasis on AFL; More improvement per session than PDL.

- Agreed on conservative, low-density treatments delivered at 1-3 month intervals.

- Exact time to initiate treatment undetermined; however, experience dictates early is best.
Many laser techniques are available for the safe and effective treatment of various types of scars.

Individualize and combine devices to customize the treatment to the characteristics of the scar.

Although long-standing scars will respond to laser therapy, new scars are more amenable to treatment; therefore, prompt treatment is recommended.

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SUMMARY